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SOME STANDARDS FOR HOME PROJECT WORK IN AGRICULTURE

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The purpose of this study is to point out some of the present tendencies in home project work carried on by pupils who have received agricultural instruction in Smith-Hughes departments of high schools. Standards are as desirable in the field of vocational agriculture as in other fields of education. Yet the writer prefers to regard standards in a new field as flexible and tentative. Therefore, he does not propose the adoption of any set rules or criteria for project work. He hopes to show the prevailing practices in various states and how far these practices have characteristics in common.

I. STANDARDS FOR HOME PROJECT PUPILS

TABLE I

REPORTS OF HOME PROJECT PUPILS IN AGRICULTURE, 1919-20

State	Total Number of Depart- ments of Agriculture	Number Reporting	Number of Pupils Reported	Percentage Boys	Percentage Rural	Median Enrol- ment
Illinois.....	75	30	694	100	88	22
Indiana.....	50	20	646	84	91	21
Iowa.....	24	11	153	98	74	14
Kansas.....	32	14	230	100	85	14
Massachusetts.....	14	5	64	98	70	10
Minnesota.....	40	32	491	97	88	14
Missouri.....	43	18	374	91	85	20
Nebraska.....	29	18	268	100	76	15
New York.....	69	35	745	89	83	17
Ohio.....	61	27	593	100	94	19
South Dakota.....	12	6	93	100	52	16
Wisconsin.....	.....	6	272	82	64	32

1. Ninety-four per cent of the pupils in all the states were boys. There seems to be a strong tendency to confine home project work

in agriculture under the Smith-Hughes Act to boys. Girls should probably receive the instruction considered suited to their tastes and interests in the elementary school or in general agriculture classes in the high school.

2. Seventy-nine per cent of the pupils enrolled in this work in all the states were classed as rural. A strong tendency exists to consider rural pupils, rather than urban pupils, the ones to whom vocational instruction in agriculture should be given primarily. This indicates that the urban boy should manifest a genuine interest in farming as a possible vocation for himself before being enrolled for project work.

3. Having in mind the figures given in the last column of Table I, we raise the question whether in some states the number of pupils per instructor should not have been made smaller by discouraging urban boys and girls from undertaking project work. To supervise the project work of sixteen pupils in a satisfactory manner seemed to have been the average task of instructors in 1920. To increase the size of the project group for the sake of making a showing of numbers, or for the purpose of reducing the per capita cost of instruction, is doubtless poor policy, if it means the enrolment of pupils for whom agriculture has no vocational significance.

TABLE II
THE FARM EXPERIENCE OF HOME PROJECT PUPILS, 1919-20

State	Percentage Living on Farms	Percentage Had Lived on Farms	Percentage Had Worked on Farm as Laborers	Percentage Lacked Farm Experience
Ohio.....	94	4	1	1
Indiana.....	75	14	10	1
Iowa.....	87	9	1	3
Minnesota.....	86	8	2	4
Kansas.....	83	3	9	5
Missouri.....	85	6	2	7
New York.....	77	10	4	9
Nebraska.....	73	12	5	10
Wisconsin.....	67	6	17	10
Illinois.....	68	10	8	14
South Dakota.....	46	22	13	19
Massachusetts.....	64	5	10	21

4. Seven per cent of the pupils had had no farm experience. Pupils without farm experience were not inclined to perform home project work. It is possible that the farm boy who has moved to town or the urban boy who has worked on a farm may be influenced to choose farming as an occupation through successful project work.

5. The median age of home project pupils was: Kansas 17+, Illinois 16+, Iowa 16+, Missouri 16+, Ohio 16+, Minnesota 16+, Massachusetts 16+, Nebraska 16, Wisconsin 16-, New York 15+, South Dakota 15+, and Indiana 15+. Pupils with a median age of 16 were permitted to assume the responsibilities of project work.

TABLE III

THE PERCENTAGE OF HOME PROJECT PUPILS IN THE FOUR YEARS OF THE HIGH SCHOOL

	Kan- sas	Mis- souri	Ne- braska	Illi- nois	Ohio	Iowa	Indi- ana	Min- nesota	South Dakota	New York
First year..	44	39	37	36	35	36	37	35	33	34
Second year....	31	32	26	34	26	24	20	22	21	15
Third year.	16	20	20	19	21	22	12	11	10	12
Fourth year....	8	8	16	8	15	8	6	6	6	4
Total.	99	99	99	97	97	90	75	74	70	65

6. Seventy to 99 per cent of the pupils were enrolled in the high school, or 1 to 30 per cent in the elementary school or in the unclassified group. Fifty-four to 75 per cent of the pupils were in the first two years of high school.

The percentages of pupils who lacked requirements for entrance to high school were: New York 26, Minnesota 21, Indiana 14, Illinois 9, Massachusetts 9, Kansas 5, South Dakota 5, Wisconsin 3, Ohio 2, Nebraska 2, Iowa .7, Missouri .5. School authorities in at least four states encouraged pupils who had not completed the elementary school to enrol for project work. The percentages of home project pupils who were not in any school the preceding year were: Minnesota 14, Ohio 6, South Dakota 5, Kansas 5, Indiana 4, Iowa 4, Illinois 4, Missouri 2, Nebraska 2, New York 2, Massachusetts 1, Wisconsin 0. School authorities in nearly every state made some effort to enrol those young people who had dropped out

of school for various reasons. Apparently, in some states like New York, Indiana, and South Dakota, pupils of the elementary school were encouraged to do Smith-Hughes project work. In Minnesota the pupils who had dropped out of school constituted the majority of the group classed as non-high-school pupils or as specials.

7. The percentages of pupils receiving only six months' instruction in agriculture preparatory to project work were: Minnesota 64, Iowa 8, New York 1, and zero for the other states. Schools in a majority of the states did not deem it advisable to offer to high-school pupils courses shorter than nine months. It is worthy of note that Minnesota, having the largest percentage of pupils enrolled in six months' courses, likewise had the largest percentage of pupils who were not in school the year before. It is possible that other states will adopt the policy of carrying on intensive campaigns to induce many farm boys, educationally handicapped, to enrol for all the advantages that accompany supervised project work. Six months' courses, evening courses, or part-time courses seem desirable to make it easier for farm boys to receive instruction preparatory for project work.

II. STANDARDS FOR SPECIAL INDUCEMENTS TO ENROL FOR PROJECT WORK

1. The percentages of home project pupils who entered boys' and girls' club contests were: Indiana 76, Wisconsin 60, Minnesota 42, Missouri 27, New York 25, Illinois 24, Iowa 23, Massachusetts 23, South Dakota 22, Kansas 17, Nebraska 13, and Ohio 6. Apparently in some states objection was made to permitting pupils in Smith-Hughes project work to share in the prizes and special privileges of Smith-Lever club contests. Experiences of many states do not seem to warrant this objection.

2. The percentages of schools offering extra school credit for home project work were: Wisconsin 100, Illinois 80, Iowa 60, Indiana 30, Kansas 21, New York 17, Minnesota 15, Ohio 11, Missouri 3, Nebraska 1, and South Dakota and Massachusetts 0. The tendency seemed to be to offer extra credit in addition to that received for classroom work, especially in those states where nine

months' courses prevailed. One-fourth to one extra credit is given for successful project work. On this point many instructors appeared very uncertain, no definite policy having been established in the state.

III. STANDARDS FOR LOCATION OF PROJECTS

TABLE IV

LOCATION OF HOME PROJECTS

Percentage Located	Ill.	Ind.	Iowa	Kan.	Mass.	Minn.	Mo.	Neb.	N.Y.	Ohio	S.D.	Wis.
On home farms.....	72	84	80	78	.....	85	82	75	86	92	46	77
On other farms.....	7	5	20	9	.....	8	8	9	3	4	9	5
On school plots.....	2	1	0	2	.....	.4	3	2	1	.2	0	4
On urban lots.....	19	11	0	10	.....	6	7	14	9	4	45	14
Within 3 miles of school...	49	43	33	38	51	31	35	53	61	35	72	47
Within 6 miles of school...	31	40	51	30	31	34	25	34	29	47	14	35
Within 15 miles of school...	18	14	10	23	10	24	32	9	9	17	12	15
Over 15 miles from school.	3	3	6	9	8	10	9	4	1	1	2	4

1. Table IV points out that, in all states but two, at least three-fourths of the projects were located on farms where pupils lived; that a small percentage of projects were located on farms where pupils did not live permanently; that the school plot was used very infrequently as a place for Smith-Hughes project work; and that many urban pupils attempted to receive vocational instruction in agriculture through projects located on village or city lots. No serious objection can be made to an urban boy doing project work, provided he chooses to do so under natural farm conditions.

2. Forty-five per cent of the projects were located within 3 miles of the schools, 34 per cent within 6 miles, 17 per cent within 15 miles, and 3 per cent beyond 15 miles. Project work was carried on within a radius of 15 miles, or the trade territory of the community. Greater distances are liable to be the cause of poor supervision of projects.

IV. STANDARDS FOR SELECTING PROJECTS

1. The percentages of pupils selecting general farm practice were: Iowa 53, Massachusetts 13, Illinois 11, Minnesota 5, Missouri 2, Nebraska 2, Wisconsin 2, New York 1, Indiana .3, and Kansas, Ohio, and South Dakota 0 each. A definite phase of

farm work on which the pupil may put intensive study, for which he may assume full responsibility, for which he may keep accurate farm records, and from which he may receive financial benefit is accepted as a standard in all the states except one, Iowa. Even in this state, 104 definite projects were reported, or only 5 out of 11 schools reported no definite project work.

2. For Minnesota in 1918-19, 58 per cent of the pupils studied farm crops and 45 per cent selected farm crop projects; 20 per cent studied animal husbandry, and 16 per cent selected animal projects; 14 per cent studied horticulture and 10 per cent selected horticultural projects; 5.7 per cent studied farm management and 5.4 per cent selected projects in farm management; 2.5 per cent studied soils and 2.5 per cent selected projects in soils. Thus it appears that pupils may be expected to do project work that is closely related to the courses pursued in the classroom.

3. Corn was selected as a plant project by the largest percentage of pupils in the following states: Illinois 48 per cent, Indiana 44 per cent, Iowa 43 per cent, Kansas 43 per cent, Missouri 81 per cent, Minnesota 50 per cent, Nebraska 60 per cent, Ohio 65 per cent, and South Dakota 56 per cent; potatoes in New York 38 per cent, gardens in Massachusetts 80 per cent, and Wisconsin 34 per cent (corn 29 per cent and potatoes 28 per cent). A leading crop of the community was selected as a project, except in those states where urban pupils took garden projects. The same principle governed the choice of animal projects: swine in Illinois 50 per cent, Indiana 48 per cent, Iowa 34 per cent, Kansas 55 per cent, Missouri 56 per cent, Minnesota 42 per cent, Nebraska 61 per cent, Ohio 55 per cent, Wisconsin 38 per cent; poultry in New York 58 per cent. Dairy and beef projects did not appear in as large numbers as one might expect for the reason that swine and poultry projects are more easily organized, represent smaller investments, and yield quicker returns.

4. The cultivated crop, like corn or potatoes, was preferred over a small grain project (Illinois 9 per cent, Iowa 36 per cent, Kansas 31 per cent, Minnesota 10 per cent, Nebraska 11 per cent, Ohio 4 per cent, South Dakota 4 per cent), the latter not possessing the educational values of the cultivated crop.

5. Twenty-seven kinds of plant projects and 10 animal projects were selected, besides 12 miscellaneous projects. Onions, alfalfa, sugar beets, sweet potatoes, asparagus, mangels, tomatoes, melons, strawberries, beans, orchard, soy beans, tobacco, pop corn, sweet corn, cabbage, grapes, clover, small fruits, sweet clover, cantaloupe, bees, rabbits, and turkeys were the choices of a few pupils. Some of these, like onions, sugar beets, and bees, cannot be questioned as to their value as major projects. Others may serve well as minor or associated projects, like alfalfa with a dairy project. Apparently, pupils had liberty to plan and execute projects suited to their interests, even though these interests may not have represented a leading phase of farming. Fortunately these interests seemed to conform largely to the best farm practice of the community.

V. STANDARDS FOR SIZE OF PROJECTS

1. The median size of 57 corn projects completed in Minnesota in 1919 was 10.1 acres. With the exception of one state in 1920 ($\frac{1}{8}$ - to 2-acre projects), the minimum size of corn projects in all states hovered around 5 acres. There seemed to be a strong tendency to make the size of the project large enough to cause the records obtained therefrom to represent normal farm records of labor and cost, to give sufficient opportunities for skill and management, to give ample financial rewards, and to warrant the respect of the boy for his job.

2. The median number of hours spent on 52 corn projects completed in Minnesota in 1919 was 201, with a range of less than 50 to over 950 hours. This great range in hours may have been due, possibly, to carelessness in keeping records, to the number of operations included, and to the number of acres for the projects. Apparently, projects may be so planned and carried out that at least 200 hours will be recorded by pupils for their labor.

VI. STANDARDS FOR SUPERVISION OF PROJECTS

1. The average number of visits made to projects by instructors in Minnesota in 1919 was 0.4 in March, 6 in April, 13 in May, 19 in June, 13 in July, 12 in August, 2 in September, and 1 in October, the average number of projects visited for the season being 14 per

instructor. Visiting of projects did not become general until May, although many boys had started their swine and poultry projects somewhat earlier than May. Visiting ceased almost entirely during September and October, when boys must have been busy with harvesting their corn crops or with fattening their pigs. As the purpose and possibilities of project supervision become more fully understood by instructors, it is possible that visits will start at least when the boy begins his project and continue at least until he finishes his project and completes his records.

VII. STANDARDS FOR COMPLETION OF PROJECTS

1. Projects were completed in Minnesota in 1919 as follows: orchard 100 per cent, wheat 93 per cent, poultry 75 per cent, corn 70 per cent, potatoes 70 per cent, oats 67 per cent, gardens 66 per cent, dairy cattle 66 per cent, swine 55 per cent, and beans 25 per cent; for all projects 70 per cent. It seems possible for instructors to cause the carrying-out of projects to the final stage of rendering financial summaries and writing accounts of project methods and results; some failures must be expected as in other phases of school work. Project workers need stimulating, sympathetic instruction and direction throughout the entire project period. For the completion of the project the instructor should feel a great responsibility.

2. Projects in Minnesota in 1919 were completed according to original plans as follows: wheat 76 per cent, poultry 65 per cent, corn 64 per cent, orchard 63 per cent, garden 59 per cent, swine 55 per cent, potatoes 52 per cent, dairy cattle 27 per cent, oats 25 per cent, beans 20 per cent; for all projects 56 per cent. It appears that instructors allowed pupils to change their projects. This is not an altogether objectionable practice, if the changes do not involve too great a departure from the problems considered in the originally planned projects. On the whole, it seems desirable to expect pupils to make definite plans for projects and to hold them responsible for completing the same.

3. The yields obtained from corn projects in Minnesota for 1919 ranged from 20 to 120 bushels; the median was 56.5 bushels for 57 projects. In 75 per cent of the projects the yield exceeded

the average yield in Minnesota for that year. It seems fair to expect that project returns will exceed the returns of the average farm. Vocational instruction may not merit the confidence of fathers and neighbors unless this achievement is realized.

4. The cost of producing corn per bushel in Minnesota for 1919 ranged from 19 cents to \$1.35; the median was 49 cents for 51 projects. This range, of course, is due partly to varying yields. But many figures were faulty, evidently because all items of cost were not accounted for, and too low charges for labor were made. Boys with potato projects secured a median cost comparable to the farm average of the state. Accurate cost-accounting seems to be a desirable feature of project work.

5. The average net profits derived from projects in Minnesota for 1919 were: oats \$885, corn \$359, dairy cattle \$259, wheat \$185, potatoes \$148, swine \$69, poultry \$33, orchards \$22, and gardens \$22. Seven projects only were completed with losses. Profits varied according to size of projects, weather conditions, etc. It seems desirable that the boy should make a profit on his labor. This is not the principal aim of vocational training, but it is a useful means of arousing interest.

The standards presented seem to represent the prevailing practice in home project work in agriculture. Some are easily attainable and some may be impossible in certain states or schools because of local conditions. But representing the combined judgments of those school authorities who have been the first to attempt the solution of the many problems of vocational agriculture, with many evidences of significant results, these standards may be useful tentatively to the great numbers of other school authorities who, it is hoped, will become interested in the education of farm boys through properly organized and supervised home project work.